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Pterocarpus lucens Lepr.

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FOREST & LANDSCAPE

SEED LEAFLET

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MILLENNIUM SEED BANK PROJECT Kew

Pterocarpus lucens Lepr..

Taxonomy and nomenclature

Family: Leguminoseae

Synonyms: *Pterocarpus abyssinicus* Hochst., *P. simplicifolius* Bak., *P. lucens* var. *simplicifolius* (Bak.) A. Chev., *P. leucens* Guillemin & Perrottet.

Vernacular/common names: include: small-leaved kiaat and small-leaved bloodwood (English). Tami, tani, tiami (Peulh), alebonis, alibunes (Tamachek), taraya (Arabic-Sudan), pemperga (Mooré).

Related species of interest: *Pterocarpus antunesii* (Taubert) Harms occurs in southern Africa and has sometimes been treated as a subspecies of *P. lucens*.

Distribution and habitat

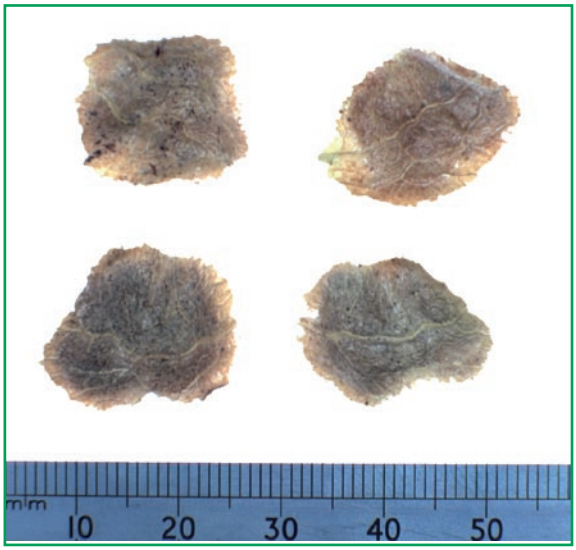
Pterocarpus lucens is a species extensively found throughout the semi-arid regions of tropical Africa. It is widely distributed in western Africa, from Senegal and Mali, to Nigeria and Cameroon, and is also present in eastern Africa (Sudan, Ethiopia and Uganda). It is found in wooded grassland, savannah, low altitude woodland, and particularly on rocky hills. Growing at altitudes of 550-1520 m, it sometimes forms thickets, and sometimes forms pure stands on well drained sites, often in deep sandy soils, or on stony, gravely or lateritic soils. It has an irregular distribution, and is locally common and gregarious. In northern Burkina Faso the species is seriously threatened.

Uses

The timber is whitish, hard, close grained and flexible. The wood has many uses including house construction, telegraph poles and furniture. It is also used for small carpentry to make handles, pestles, poles, cabinets, gun butts, bows and spears. It is used as firewood, and also for tanning leather. The leaves as well as fruits are palatable and eaten by camels and livestock. The leaves are also used as a vegetable. *Pterocarpus lucens* possesses numerous medicinal properties. The bark is used as a powerful astringent, and the leaves are used to heal wounds. The roots, leaves and bark are also used to treat tapeworm, diarrhoea, migraines and headaches.

Botanical description

Pterocarpus lucens is a deciduous shrub or a small tree. The shrub form is up to 3-8 m, with low branching. Trees can grow to 8-18 m, with a straight bole and dense and narrow crown. The bark is dark grey-brown, and scaly. The slash is thin, brown, mottled with yellow and purplish-red, exuding a red sticky resin. Leaves are 10-28 cm long, alternate, imparipinnate with 1 to 11 (usually 5 or 7) alternate or subopposite leaflets. The leaflets are variable in shape: suborbicular, ovate or elliptic, 3-4 (-10) cm long and 1.5-2 (-5) cm wide, entire margin, notched, rounded or obtuse at the apex and rounded at the base. Pale green and shiny above, much paler below with a covering of fine hairs. Nerves pinnate, and 6-20 pairs of barely prominent lateral nerves fusing near the apex. Stipules are linear, 2-3 mm long, falling off early; petiole spindly and glabrous, 10-20 cm long.



De-winged fruits of *Pterocarpus lucens.* Photo: H. Vautier

The inflorescences are produced on leafy branches. The inflorescence is a few to many flowered spike-like raceme or panicle (6-30 cm long) borne in the axils of the leaves, or of fallen leaves. The light yellow, sweetly scented flowers are on long peduncles (8-15 mm). They are pea-shaped, asymmetrical, glabrous, with shortly 5-toothed calyx (4-6 mm long) with the upper 2 teeth practically united. The corolla is 10-14 mm, and the anthers are versatile.

Fruit and seed description

Fruit: The fruits are indehiscent pods and functionally samaras. They are circular or oblong, asymmetrically on one side by a stalk-like protrusion. They are a pale creamy brown, occasionally with a reddish tinge and flat. The surrounding wing is membranous,

obovate or elliptic, stalked and glabrous. The pods including wings are 4.5-6.5 cm long and 2-3 cm wide. The central seed bearing part is thick and hard, containing 1 or 2 seeds. The pods are persistent on the tree for a long time. There are approximately 5000 seeds per kg.

Seed: The morphological seeds are reniform or oblong-reniform with a thousand seed weight of about 200 g. The seed has an embryo to seed weight ratio of 0.15, and ca. 11% of oil is extract from the de-winged embryos.

Flowering and fruiting habit

Flowering occurs in the dry season, just before or during leaf growth. The flowering period is short, often only a few days. This is typically in November and December, with the fruits developing 2½ - 4 months after between January and May.

Harvest

Harvest time is not critical as the fruits will persist on the tree for a long time after maturity. Fruits are harvested from the tree by long handled tools or by shaking fruit bearing branches.

Storage and viability

Seed of this species exhibit orthodox seed storage behaviour. Long-term storage has been set up at RBG Kew, Wakehurst Place, since 1986, and X-ray analysis of the 5 seed lots, revealed quality from 63 to 90 %.

Dormancy and pretreatment

The hard pericarp make up a physical constraint to both absorbtion and embryo enlargement. Seeds sown with enclosing pericarp should be scarified e.g. by manual chipping or 10-15 min in sulphuric acid. Extracting seeds manually impose a risk of damaging them as the seed coat is very fragile. Undamaged extracted seed germinate well without further pretreatment.

Sowing and germination

Scarified seeds that were held in high humidity over water for 7 days at 20°C, then sown on 1% agar, at 20°C and an 8/16 h photoperiod, achieved 80% germination within 3 to 4 weeks. However, the seeds do not germinate below 15°C. Chipped seeds sown on 1% agar at 26°C and a 12/12 h photoperiod, achieved 100% germination.

Selected readings

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